REMARKS

By the present Amendment, the amendment to the specification at page 1 has been corrected to recite an amendment provided on May 24, 1995 in the application transmittal sheet at item 7. Also, for the purpose of expediting prosecution only, the claims have been amended to recite particular proteins exemplified in the specification. The claims have also been amended to recite both a promoter and a DNA sequence encoding a pre-pro peptide of yeast alpha factor. No new matter has been added.

Objection to the specification

The Examiner objected to the specification, maintaining that "[t]he newly resubmitted amendment to page 1 does not comply with 37 CFR 1.121. Page, 1, lines 21-23 had been replaced by a preliminary amendment filed with the application on 5/24/95 (see transmittal sheet, item 7)." *Office Action dated December 16, 2004 at page 2, item 2.* By the above-identified amendment, this objection has been obviated.

Rejection Under 35 USC § 112, First Paragraph, Enablement

The Examiner rejected Claims 47-54 and 58-60 under 35 U.S.C. 112, first paragraph, alleging that the specification does not provide enablement for expression vehicles comprising only a promoter or only the pre-pro sequence for yeast alpha factor. *Office Action dated December 16, 2004 at page 3, item 4.* The present amendment obviates this portion of the rejection by requiring that the

expression vehicle contains both a promoter and the pre-pro sequence for yeast alpha factor.

The Examiner also noted that the claimed processes and expression vehicles produce proteins which "may be either mature protein or it may be protein expressed with extra amino acids on the end." *Office Action dated December 16, 2004 at page 6, item 4.* The Examiner then alleged that the specification was not enabling for the production of all proteins which may have extra amino acids on the end. For the purpose of expediting prosecution, the claims have been amended to recite specific proteins exemplified in the specification, namely interferon, serum albumin, tissue plasminogen activator, rennin and insulin-like growth factor.

At p. 16 of the specification, Section J describes "Construction of a Plasmid for Expression and Secretion of Human Interferon", by preparing plasmid "p60". In Section K, an interferon assay confirmed with a cytopathic effect (CPE) inhibition assay that interferon had indeed been produced. Section M on pp. 19-20 demonstrated that the interferon was not "mature", because it contained Glu-Ala sequences. However, the use of p60 to produce interferon, albeit immature interferon, is a working example within the scope of the present claims, which are not limited to producing mature heterologous protein. Moreover, Section N beginning on p. 20 of the specification describes the production of plasmid "p65", which was used to produce a number of heterologous proteins (see Table I on p. 21).

At p. 25 of the specification, Applicant notes that "the short [glu-ala] peptide extensions do not result in loss of interferon activity" (ll. 21-22), but that "it would be preferable to produce and secrete into the growth medium proteins that are identical to the proteins from the natural sources." (ll. 32-34). As such, Applicant undertook a

further modification of the foregoing plasmids to obtain plasmid "p76" (Example beginning on p. 25 of the specification; Fig. 11), which did indeed produce mature heterologous protein.

As such, there are several working examples in the present specification which describe the production of active, albeit perhaps not all mature, heterologous proteins, within the scope of the present claims. Hence, because the claims are not limited to the production of mature proteins, and because there are several working examples to support the enablement of various different constructs within the scope of the claims, Applicant submits that the specification is indeed enabling for the production of the recited proteins. Withdrawal of this rejection is therefore respectfully requested.

Rejection Under 35 USC § 102(g)/103(a)

The Examiner also rejected Claims 47-54 and 58-60 under 35 U.S.C. §102(g)/103(a) as being allegedly anticipated by the Count of Interference 102,728 against Brake et al U.S. Patent No. 4,870,008 ("the Brake '008 patent"). This rejection is respectfully traversed.

As the Examiner correctly noted, the Count in Interference 102,728, was limited to the production of "mature" proteins. In addition, all the claims corresponding to the Count were so limited. As discussed above, the present claims are not so limited. As a result of the differences in claim scope between the claims involved in the interference, and those of the present application, a determination of priority with respect to the presently claimed subject matter was never undertaken.

Indeed, the Brake '008 patent refers to an earliest filing date of January 12, 1983. In the *Singh v. Brake* interference to which the Examiner refers, Singh provided evidence which demonstrated that by October 1, 1982, Singh had obtained successful expression of a protein using a construct as recited in the claims (i.e., a DNA sequence encoding a pre-pro peptide of yeast alpha factor operably connected in translation reading frame to a DNA sequence encoding a protein heterologous to the yeast). (Copies of the relevant documents and declarations from the interference were attached as an Appendix to the Amendment dated August 6, 2004). However, that protein contained N-terminal Glu-Ala sequences (i.e., it was not "mature" protein"). The Board therefore did not agree that Singh obtained properly processed "mature" protein prior to the filing date of Brake, and as such, Brake prevailed in the interference.

However, the present claims encompass the production of such Glu-Ala-containing proteins, and thus, Singh's October 1, 1982 production of incompletely processed heterologous protein is a reduction to practice which antedates the Brake '008 patent, and would have resulted in Singh prevailing in an interference directed to the presently claimed subject matter. Moreover, under the two-way obviousness test, the present claims could not have been added to Interference 102,728. Therefore, there should be no estoppel from Interference 102,728 which applies against the present claims. Withdrawal of this rejection is therefore respectfully requested.

Further and favorable action in the form of a Notice of Allowance is believed to be in order, and is earnestly solicited.

If the Examiner has any questions regarding this amendment, or the application in general, he is encouraged to contact the undersigned directly so that prosecution may be expedited.

Respectfully submitted,
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